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This study sought to determine the effect of sociability, a personality variable, on the kind and number of statements made by an individual in a group. Subjects were 65 adult basic education workshop participants from Alabama, Florida, Georgia, Mississippi, and Tennessee. They were divided into seven groups by stratified random sampling on age, sex, and race; group leaders were rotated to control the effect of differing leadership styles. Data on interaction, sociability, and demographic factors were obtained with the Reciprocal Category System, a scale of social introversion and extraversion, and a brief questionnaire. All types of interaction but one correlated significantly with interaction rate. None of the demographic variables (age, sex, race, administrative experience, teaching experience, educational background) correlated significantly with interaction. Implications for research were noted. (Included are ten references and four illustrations.) (ly)

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THE EFFECT OF SOCIABILITY ON THE TYPE AND RATE OF INTERACTION IN SMALL GROUPS

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INTRODUCTION

Most teachers are very much aware that interaction patterns among students are affected to a certain degree by their personalities. Some individuals with high interaction rates assume leadership positions in the group. Students with relatively lower rates tend to assume residual roles of supporting, modifying, qualifying, or rejecting. The students who have the lowest interaction rates may be excluded or withdrawn and may not contribute substantially to the support of fellow students, the teacher, or the task.

While it may be ideal to have the participation divided equally among the group members, it is apparent to anyone who has observed the behavior of the discussion groups that the extent of participation is not equally distributed among members. This breakdown in "equal participation" can be understood better with increased information about the composition of groups and the impact of such composition upon participation in the interaction process.

STATEMENT OF THE PROBLEM

Although one can observe that the type and rate of interaction varies among group members, this behavior cannot at present be explained. The purpose of this study is to investigate the variation in the interaction patterns of group members.

More specifically, this study is designed to determine the

effect of sociability, a personality variable, on the type of statements made and the number of statements made by an individual in a group.

Certain demographic factors have been found to be related to interaction and will be treated as intervening variables during data analysis.

SIGNIFICANCE OF THE PROBLEM

According to Sheats, Jayne, and Spence, there is an inconsistency between the philosophy of adult education and the emphasis on teaching methods designed to pass subject matter information efficiently from authorities to students. They state that . . .

> If the following points of view are accepted--that is, first, that adult education should meet the needs of people, second, that meeting needs generally demands problem solving, third, that problem-solving involves action programs, fourth, that problem-solving, including the promotion of action, is best done through group participation, then it follows that the fundamental problem in adult education method is not concerned with formal teacher dominated activities such as effective ways to lecture or demonstrate or to make assignments but rather with the problem of setting the stage and providing leadership so that groups may most effectively work toward the solution of their problems and the satisfaction of their needs.[1]

McKeachie indicates that since discussion offers the opportunity for a good deal of student activity and feedback, it may be more effective than the lecture method in developing concepts and problem solving skills.

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[1]Sheats, Paul H., Clarence D. Jayne, and Ralph B. Spence, Adult Education (New York: The Dryden Press, 1953), p.323

By participating actively in discussion, the students begin developing skill in critical thinking by doing the thinking and checking their thinking against that of others. However, it is not always easy to get students to participate in discussions. The student who remains quiet in class avoids the risk of disagreement, criticism, and embarrassment.[1]

According to London, interaction in groups is crucial in determining the subsequent behavior of members. This interaction is as important as social forces impinging on the group or the formal organization of the system in determining the action taken by the group members.[2]

Although there have been many studies on the presentation of materials by lecture versus discussion techniques, there is a dearth of studies on the relationship between personality and the interaction rate of students. In summing up the studies on the relationship between personality characteristics and teaching methods, McKeachie states that "it is safe to say that no major breakthrough has occurred, but the result so far appear promising."[3]

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[1]McKeachie, W.J. "Research on Teaching at the College and University Level" in Gage, N.L. (ed) Handbook of Research on Teaching (Chicago: Rand McNally and Company, 1963) p. 1122 - 1127

[2]London, Jack "The Relevance of the Study of Sociology to Adult Education Practice," in Jensen, Gale, et.al., (eds.) Adult Education: Outlines of an Emerging Field of University Study (Adult Education Association of the U.S.A., 1964) p. 130

[3]McKeachie, W.J. "Psychological Characteristics of Adults and Instructional Methods in Adult Education, " in Kuhlen, Raymond G., (ed.) Psychological Backgrounds of Adult Education (Chicago: CSLEA, 1963) p.140

Much effort has been put into the development of the group discussion method over the years, yet, little has been accomplished either in its study or in the training of adult educators for the use of discussion in adult education. There are many reasons for this slow development. Those in adult education have been too few in number to spend time in scientific exploration, and schools in education and psychological laboratories have found it easier to work with non-adult subjects. (Note: The writer's definition of adult does not include college sophomores.)

This study was made because of the great emphasis placed on group discussion in adult education and the relative lack of information about the factors which influence interaction. The major explanatory variable of interaction in this study will be the sociability level of the student.

REVIEW OF LITERATURE

In summary, the review of literature revealed that when the opportunity for group interaction was provided, certain variables were found to differentiate between participants and nonparticipants in the group discussions. Among the personality traits, sociability appeared to be the most promising predictor of type and rate of interaction. The literature also showed that group size was an important factor influencing interaction. As a general rule, there is a positive relationship between group size and the interaction rate of the leader and a negative relationship with the interaction rates of the group members. As a means of controlling for the influence of group size

on interaction, an effort was made to have an equal number of participants in each group.

The demographic factors: age, sex, socioeconomic status, knowledge about the discussion area, and educational level were found to influence the type and rate of interaction. The demographic factors were analyzed as intervening variables. The variables adult teaching experience and adult administrative experiences were used as indirect measures of the knowledge of the discussion area. Due to the small differentiation among teachers' salaries, this appeared to be an inappropriate measure of socioeconomic status. Since race and socioeconomic status are closely related in the South, race was utilized as an indirect measure of status.

DEFINITIONS

In an effort to understand interaction or social interaction, measurements are usually recorded on the type and rate of interaction. Hare defines interaction rate as "the frequency of interaction, sometimes represented by the number of contributions; i.e., action and silence, and sometimes by the number of contributions times the average duration of each; i.e., total talking time."[1]

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[1]Hare, A. Paul, Handbook of Small Group Research (New York: The Free Press of Glencoe, 1962), p.12

In this study an individual's rate of interaction is defined as the percent of the total group acts contributed by that member. An act is defined as any verbal behavior which occurs during a three second interval.

The type of interaction is defined by the categories in the observation instrument utilized in data collection. There are actually nine types of interaction in this study. These are defined by the instrument on pages 7 and 8. [1]

As indicated previsoulsy, the personality trait sociability, which in the review of literature proved to be the most promising predictor of interaction, was utilized in this study. Sociability was defined as a liking to be with others, to participate in group activities.

THEORETICAL FOUNDATIONS

This study had its theoretical foundation in a social-psychological theory of interaction which suggest that the interaction process can be explained in part in terms of the personality of the individuals who are interacting.

Dalton formulated a theory of interaction which stated that what each party brings to the situation, as well as what each does in the situation (that is, in response to cues from the other) become clear antecedents to the

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[1] Ober, Richard L., Samuel E. Wood, and Arthur Roberts, "Development of a Reciprocal Category System for Assessing Teacher-Student Classroom Verbal Interaction." Paper read at the annual meeting of the American Educational Research Association, Chicago, Illinois, February 8 - 10, 1968.

Fig. 1 -- Summary of Categories for the Reciprocal Category System.

Category Number Assigned to Party 1[a]	Description of Verbal Behavior	Category Number Assigned to Party 2[b]
1 *	"WARMS" (INFORMALIZES) THE CLIMATE: Tends to open up and/or eliminate the tension of the situation; praises or encourages the action, behavior, comments, ideas, and/or contributions of another; jokes that release tension not at the expense of others; accepts and clarifies the feeling tone of another in a friendly manner (feelings may be positive or negative; predicting or recalling the feelings of another are included).	11
2	ACCEPTS: Accepts the action, behavior, comments, ideas, and/or contributions of another; positive reinforcement of these.	12
3	AMPLIFIES THE CONTRIBUTIONS OF ANOTHER: Asks for clarification of, builds on, and/or develops the action, behavior, comments, ideas and/or contributions of another.	13
4	ELICITS: Asks a question or requests information about the content subject, or procedure being considered with the intent that another should answer (respond).	14
5	RESPONDS: Gives direct answer or response to questions or requests for information that are initiated by another; includes answers to one's own questions.	15
6	INITIATES: Presents facts, information, and/or opinion concerning the content, subject, or procedures being considered that are self-initiated; expresses one's own ideas; lectures (includes rhetorical questions--not intended to be answered).	16

7	DIRECTS: Gives directions, instructions, order, and/or assignments to which another is expected to comply.	17
8	CORRECTS: Tells another that his answer or behavior is inappropriate or incorrect.	18
9	"COOLS" (FORMALIZES) THE CLIMATE: Makes statements intended to modify the behavior of another from an inappropriate to an appropriate pattern; may tend to create a certain amount of tension (i.e., bawling out someone, exercising authority in order to gain or maintain control of the situation, rejecting or criticizing the opinion or judgement of another).	19
10	SILENCE OR CONFUSION: Pauses, short periods of silence, and periods of confusion in which communication cannot be understood by the observer.	10

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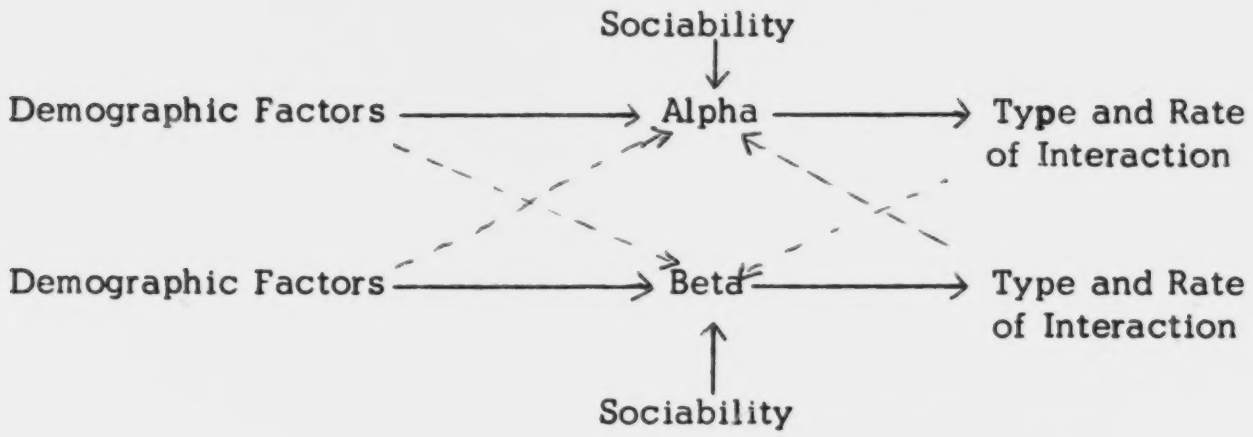
[a]Category numbers assigned to Teacher Talk when used in classroom situation.
[b]Category numbers assigned to Student Talk when used in classroom situation.

*There is NO scale implied by these numbers. Each number is classificatory; it designates a particular kind of communication event. To write these numbers down during observation is to enumerate, not to judge a position on a scale

resulting consummatory action.[1]

According to Travers, the more comprehensive the theory, the more precisely it is possible to predict what it is desired to predict, but this is true only insofar as it is feasible to measure the variables that theory includes. It is more advantageous to produce a simple theory that deals with relatively few major variables, all of which can be measured, than one that deals with a large number of variables, most of which cannot be measured.[2] The objective of this writer was to utilize such a theory for the study of classroom interaction.

In order to explain group interaction, Dalton's theory was modified in order to limit it to a relatively few major variables, all of which could be measured. The theory is diagramed in dyadic form as follows:



[1]Dalton, Robert H., Personality and Social Interaction (Boston: D.C. Heath and Company, 1961), p. 151

[2]Travers, Robert M.W., An Introduction to Education Research (2nd ed.; New York: The Mcmillan Company, 1964), p. 39

According to this diagram, Alpha's type and rate of interaction will be determined by his demographic factors and sociability level and by his perception of Beta's verbal communication and demographic factors.

HYPOTHESES:

Based upon the theoretical model which undergirds this research study, the related former research studies and their findings, a rationale had been offered in support of the following hypotheses:

1. There will be a significant relationship between sociability and the total rate of interaction

2. There will be a significant relationship between sociability and each of the interaction categories.

The extent of the effect of demographic variables on the relationship between rate of interaction and sociability will be determined by means of statistical analysis.

INSTRUMENTS

Data on the three major variables, interaction, sociability, and demographic factors were collected by means of (1) the Reciprocal Category System, (2) the Social introversion - extraversion scale in Guilford's An Inventory of Factors STDCR and (3) a brief questionnaire, respectively.

The Reciprocal Category System (RCS) was developed by R.L. Ober to measure classroom interaction. This instrument is a modification of

Flanders' Interaction Analysis System. It was conceived and developed in an attempt to correct what is considered to be a limitation of Flanders' original instrument. Ober contends that Flanders' interaction system, with only two categories assigned to student talk, fails to devote adequate consideration to the general dimension of student verbal behavior as it relates to the classroom situation.

The RCS consists of nine categories, each of which can be assigned to either teacher or student talk, and a single category used for silence or confusion.

METHODOLOGY

Seventy-two potential teachers, and administrators of adult basic education from the states of Alabama, Florida, Georgia, Mississippi, and Tennessee participated in a three-week workshop in adult basic education, conducted by the Department of Adult Education on the Florida State University campus. Sixty-five of these participants served as subjects in this study. The remaining seven served as group leaders during the workshop.

The review of literature indicated that sex, age, and race were factors which influenced verbal interaction. The participants were divided into young and old by using the median age of the group, 41.55 years. Each subject was placed into one of seven groups through the process of stratified random sampling on sex, race, and age.

One of the major problems in the study of small groups is to control

for the effects of the different leadership styles. In an effort to eliminate this problem, the seven leaders were rotated among the seven groups so that each group was exposed to each leader.

Some minor modifications were made in the use of the RCS. While Ober uses two digit numbers to indicate that a student makes a certain type of comment, he is unable to identify which student made the comment when the data is analyzed. Since this is a study of the individual in the group, it is necessary that both the student and the type of verbal comment made be recorded. The identity of the speaker was established by assigning each individual a chair which was identified by an alphabetic letter.

Seven observers were required to collect data for this project. Five of the observers were trained by the writer during a three-week period prior to the start of the workshop. The other two observers were trained by Ober. Observer reliability was computed using a method developed by Scott.[1] Reliability figures of .77, .70, .77, .81, .79, and .84 were obtained. This represents the amount of agreement for each observer with the writer. Ober indicated that most of the observers trained in the use of RCS had a reliability score of around .75.

A total of 48 observations were made. These lasted from 30 minutes to two (2) hours.

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[1] Scott, William A., "Reliability of Content Analysis: The Case of Nominal Scale Coding" Public Opinion Quarterly Vol. 19 (1955) pp. 321-325.

The raw scores were converted to percentage by dividing the acts in each category by the total number of acts emitted by the group members. Since this is a study of the participation of group members, the total acts emitted by the leaders were omitted.

Categories one and two were combined at this point. There were two reasons for this. There was a small number of acts in each of the categories. In additon, both categories are similar; they are concerned with the positive social-emotional acts in group discussion.

Categories eight and nine were also combined for the same reasons. These categories are concerned with negative social-emotional acts observed in group discussions. There were very few tallies in each of these categories.

Five of the groups had nine members while the other two groups had ten members. An attempt was made to compensate for this inequality by converting the raw scores to Z scores. The Z score reflects an individual's relationship to the mean score of the co-participators in his group. The Z scrores were then converted to T scores for ease of handling.

DATA ANALYSIS

Since the rate and type of interaction variable failed to meet the requirements of normality, two nonparametic statistical techniques, the Kendall Tau and the Kendall Partial Rank Correlation Coefficient were utilized in data analysis.

In Table I, the relationship between type of interaction and sociability is presented. Sociability was correlated with rate of interaction and each type of interaction except answer at varying levels of acceptable significance. Each type of interaction was correlated with rate of interaction beyond the .001 level of significance.

TABLE I Kendall's coefficient of rank correlation between type of interaction and rate of interaction and sociability

Type of Interaction	Rate of Interaction	Sociability
warm and accept	.613***	.320***
amplify	.675***	.263**
question	.503***	.185*
answer	.318***	.103
information	.879***	.325***
direct	.414***	.262**
correct and cool	.455***	.261**
Sociability	.317***	

***Tau significant at the .001 level
**Tau significant at the .01 level
*Tau significant at the .05 level

The relationship between demographic factors sociability and rate of interaction is presented in Table II. None of the correlations between demo-

graphic factors and sociability were significant. The demographic factors, age, race, teaching experience, and educational level, were correlated with rate of interaction beyond the .05 level. The removal of demographic factors, individually, appeared to have no significant effect on the primary relationship between sociability and rate of interaction.

TABLE II The relationship between demographic factors and sociability and rate of interaction

Demographic Factor	Sociability	Rate of Interaction	Sociability and Rate of Interaction with Demographic Factors Removed
age	.087	.221*	.308
sex 1=Female 2=Male	.034	.177	.319
race 1=Negro 2=White	.009	.247*	.327
teaching exp.	.098	.290*	.305
educational level	.105	.227*	.304
administrative exp. 1= None 2=Some	.050	.097	.316

* Tau significant at the .05 level

IMPLICATIONS FOR RESEARCH

This study revealed certain weaknesses in the Recriprocal Category System when used with adult learning groups. These problems should be recognized by other researchers who are considering using this instrument.

The writer realizes that this could be attributed to the kind of people involved or to the particular situation.

Assuming that there is a tendency for the behavior of all task oriented discussion groups to be similar, the following suggestions are made for changes in the RCS.

The subjects for this study had very few acts in the "Warm" and "Correct" and "Cool" categories. The "Warm" and "Accept" categories should be combined and redefined. There was some difficulty in training observers to distinquish between praising and encouraging the action, behavior, comments, ideas, and/or contributions of another; the "Warm" category, and positive reinforcement of the action, behavior, comments, ideas, and/or contributions of another, a part description of the "Accept" category. The remainder of the acts which were previously classified in the "Accept" category could be placed in the "Amplify" category.

The "Correct" and "Cool" categories can be combined without changing the definitions.

To increase the validity of this observational technique for adult learning groups, the "Information" category should be divided into two parts. One part would be concerned with presenting personal opinion and experience. The second part would be concerned with factual information related to the subject or repeating, clarifying, and confirming information presented by another. These two categories are similar to the categories in Interaction Process Analysis developed by Bales.[1]

As a result of this study, an observational instrument (first draft) has been developed. The writer realizes that much work has to be done to determine the mutually exclusiveness of the categories, the validity, and the reliability of observers before the instrument can be used for data gathering purposes. This verbal communication analysis system could be used to assess the broad spectrum of verbal behavior in adult task oriented discussion groups more accurately.

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[1] Bales, Robert F., Interaction Process Analysis (Cambridge, Mass: Addison Wesley, 1951) p.9

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